Art. XVIII.—*Aphonia of Ten Months' Duration from Paralysis of the Arytenoideus Proprius Muscle, with Concomitant Heart Disease (Aortic Obstruction); voice restored by the direct application of electricity to the vocal cords.*

By **Beverley Robinson**, M.D., one of the Physicians to Charity Hospital, New York.

L. S., æt. 42, single, residing at Sharon, Connecticut, was placed under my care on May 22, 1876, through the courtesy of Dr. C. R. Agnew of this city.

She has always enjoyed good health. Four years ago, in consequence of prolonged exposure to cold, she suddenly lost her voice. Two or three months afterwards it came back spontaneously. In the month of August, 1875, her voice again disappeared, and still apparently from the effects of a cold. This time she did not recover it, and she consulted a physician, who considered her case to be one of functional aphonia, and made external applications of the faradic current to the throat. This treatment remained without effect.

Actual state.—Patient speaks in a whisper; no local pain over or in the larynx; antecedent history good; general health excellent; hearing impaired for some years.

Pharynx.—Slight catarrhal condition.

Larynx.—In phonation inter-ligamentous portion of glottis approximates well. Inter-arytenoid portion does not reach the median line, but leaves a triangular open space, with base of triangle looking posteriorly towards wall of pharynx. Inter-arytenoid fold slightly thickened; ventricular bands somewhat congested.

Treatment.—Application to larynx of ferri perchlor. (ʒij–℥j). Caps. cubebæ (10 grs.), six a day. Troch. acid. benzoici one *t. in die.*

May 25. The faradic current was applied for the first time to the arytenoideus muscle, and continued every other day until June 9.

June 1. The medicine above mentioned was omitted, and $\frac{1}{30}$ grain of strychnia with a grain each of pyrophosphate of iron and quinia was administered three times a day, and local applications of a solution of nitrate of silver (gr. xx–℥j) were made twice to the larynx from May 25th to June 9th

9th. Could speak throughout the day in a moderately good tone of voice and without great effort. During the night, however, she loses her voice, and is unable to talk louder than a whisper on awakening in the morning. Treatment by faradic electricity and strychnia is continued.

15*th.* The following notes were taken: Voice continues to improve, although still weaker than formerly. She does not lose it in the night, and on rising can talk tolerably well. At first, however, she is obliged to make more effort to articulate distinctly than afterwards. When my patient lost her voice last August (ten months ago) she felt a dull pain situated profoundly at the base of the neck, just above the clavicle, on the left side. At present she has another focus of pain in the left mammary region. The pain here is very similar in character to that still persisting at the base of the neck. Pain in the regions named is much augmented by even slight pressure. By palpation and percussion nothing abnormal is discovered, and no swelling is noticeable. Auscultation shows normal respiration, but reveals a distinct, rather rough bruit at the base of the heart, accompanying the first sound, and propagated into the arteries of the neck. The diagnosis of "aortic obstruction" is made, and, upon interrogating my patient, I find she has had latterly slight swelling of the feet and ankles at bedtime, and occasional palpitations. Since she has been under my care she has had several attacks of faintness without apparent cause, and resembling incomplete syncope. Previously she never had had anything of the sort.

Inasmuch as she is a large, robust, vigorous woman, of sanguineous temperament, I thought the tonic remedy she had been taking, by my orders, might have something to do in the causation of these attacks, and therefore prescribed elixir of calisaya with quinia in tonic doses.

A few days later my patient left town, after having visited Dr. Agnew, and made known to him the improved condition of her throat, and I heard nothing from her until September 9th, when she wrote to me:—

> "I have not forgotten to let you know of my welfare, and I think you will be glad to hear that my voice is now as strong as ever. I can talk, laugh, call, read aloud, and use it as other people do, without any inconvenience. But it is only recently that it has regained its full strength, and the improvement has been very gradual, so I have delayed waiting till I could announce its entire restoration. The heart trouble has been much better, so that sometimes for weeks I have had scarcely a twinge of the old pain, but this week it has shown that the foe is still lurking in ambush, and ready for a spring if opportunity offers. However, I do not apprehend any serious difficulty, though, perhaps, some annoyance."

The special interest of this case consists in the connection which may possibly be established between the loss of voice and the valvular affection of the heart. Very many instances have been reported already by laryngoscopists of so-called hysterical, or functional aphonia. In some of these, hysteria was made apparent, through its usual symptoms; in others, there was no substantial reason for making this diagnosis. Frequently the loss of voice was traceable in its origin to a cold; but the cold had long since disappeared, and aphonia persisted. And, under these circumstances, a whispering voice has remained for months and years, in spite of much and various medication. When, however, the faradic current has been applied directly to the vocal cords, the voice has sometimes returned in its normal strength, after one or two applications of electricity, or again it has come back by degrees, and only after persistent treatment of several weeks.

These two categories of cases have, nevertheless, been included in one over-crowded and questionable division of "cases of functional aphonia."

From this section, or class, it is time to separate cases where a *probable* physiological explanation may be given of a chronic morbid condition. In my patient, although there were no physical signs of aneurism, and but moderate enlargement of the heart, there was notable aortic obstructive disease, which is frequently accompanied by change of the cardiac muscle in the vicinity of the affected valves and orifice.

Now, this outgrowth is especially due to the production of fibrous tissue, which takes place in the more or less hypertrophied left ventricular walls. This heterogeneous development, by its nature, tends towards contraction, and after this manner will exercise pressure upon vessels and nerves. What are the peripheral extremities of nerve in the heart structure, which may be affected?

Evidently the branches from the great cardiac plexus, which derives its origin from the pneumogastric, and from the cervical ganglia of the sympathetic. In certain cases, therefore, of sudden loss of voice, organic disease of the heart may be an efficient cause of its production, and the presence of "cold" merely a predisposing one.

The *modus operandi* must seemingly be that of reflex paralysis effected through certain motor fibres of either vagus. One or more of the intrinsic muscles of the larynx may be affected. And the extent and duration of the loss of functional power in the vocal organ will, no doubt, depend upon the area and amount of pressure exercised within the cardiac walls upon nerve structure. It is a well-corroborated fact that the effects produced in the action of the vocal cords by pressure due to aneurismal tumours of the aorta, are proportioned to the degree in which the vagus, or its most important branch (recurrent nerve), becomes involved. At times, complete and lasting loss of voice is the consequence. Again, the voice comes and goes in a very intermittent and sudden manner. These are *facts*, and for lack of a better explanation we interpret them to mean, in their causation, at least, a more or less complete suppression of nerve force generated, occasioned by remote pressure. Thus it may be in instances of aphonia, brought on in reality, by intra-cardiac change, and irritation or pressure of nerve fibres originating directly in the great cardiac plexus. Whenever the pressure is slight the voice may be restored by one or two direct applications of the faradic current to the vocal cords; whenever the pressure is considerable the voice can only be re-established (if it be at all possible) by degrees, and after somewhat prolonged use of electricity. And the fact of the restoration of the voice for several weeks or months is no proof that it will not disappear once more for a time, and again return. In questioning a patient with intra-cardiac trouble and loss of voice, we should be careful not to be misled by certain symptoms, which may be present at the beginning of the aphonic state. Such patients may presume they have taken cold, and may even come to the hospital to be treated for an affection of the air passages.

Paroxysms of pain, together with cough, croup-like in character, and dyspnœa, due to spasm of the bronchial muscular fibres, may all complicate the loss of voice when peripheral nerve fibres of the cardiac plexus are irritated. And yet in these symptoms we have not those which are necessary to the existence of a bronchial inflammatory trouble. Again, my explanation of such cases of aphonia, as our preceding history presents an example, differs but little from that of aphonia occurring in the incipient stage of tubercular disease of the lungs, without any change of the laryngeal mucous membrane. Loss of voice is then "caused apparently by a reflex irritation of the laryngeal nerves, due to disturbance of the peripheral branches of the pneumogastric by the tubercular processes in the lungs."

Further, I would remark that my interpretation of so-called functional aphonia, when heart disease is manifest, is far less liable to objections, and, indeed, far more probable as regards its pathology than interpretations which trace connection between aphonia by paralysis of intrinsic laryngeal muscles and remote organs, animated by nerve trunks of very different origin from those which govern vocal function.

I shall not dwell upon the existence of pain in my case at the base of the neck, and over the præcordial region, further than to refer to the fact that this symptom, which *first manifested itself* at the period when the voice was lost for the second time, is also fairly attributable to a similar cause for its production, and this appears to me to strengthen my explanation of the etiology of the loss of voice.

ART. XIX.—*Conversion of Face Presentation into one of Vertex by Aid of Knee-elbow Position.* By J. R. HUMPHREY, M.D., Snickersville, Virginia.

ON Nov. 11, 1876, at 11.30 A.M. I was called to attend Mrs. S., æt. 20, primipara. She stated that she had had pain since early in the morning. There was great anterior obliquity of uterine ovoid. Examination revealed os partly dilated, and head on a level with brim of pelvis, presenting by the face in mento-posterior position. It was decided to be best to wait and let the labour take its natural course, viz., rotation of chin to the front. At 2.30 P. M. the condition of things was much the same, with rupture of membranes added, so I determined to make an effort toward converting the face presentation, if possible, into one of the vertex. Having been led to regard the genu-pectoral position with favour as an auxiliary in certain cases of podalic and cephalic version, a trial was made of it in this case, but owing to insufficient dilatation of os, it had to be abandoned. 4.30 P. M., Dr. R. Hoge in consultation. Examination now showed that the os was more fully dilated, and that the chin had rotated toward the sacro-iliac junction. The pains at this time were tolerably strong, and we waited awhile to see what the powers of nature would accomplish unaided. Between 5 and 6 o'clock—the woman had changed her position in the mean time—the chin was found facing almost directly the anterior surface of the sacrum, and not engaged in the excavation. The intervention of art seemed to be now called for; so at my proposal we decided to try, for the second time, conversion of the presentation to one of the vertex. Accordingly we placed some pillows